

the reasons enumerated below, Applicants hereby respectfully assert that the finality of the rejection is improper and request withdrawal of the finality, and re-assert that the claims are patentably distinct from the prior art.

**I. The Office Action Mischaracterizes Applicants' Arguments,
and Fails to Respond Fully to Applicants' Arguments,
Regarding the Rejection Under 35 U.S.C. §103(a)**

Applicants previously argued, as is noted on page 5 of the Office Action, that the features of Epstein are not combinable with the features of Faughn. The Office Action then quotes Federal Circuit precedent that "[i]t is well established that non-obviousness cannot be established by attacking the references individually when the rejection is predicated upon a combination of prior art disclosures." The implication that Applicants merely attacked the references individually is a mischaracterization of Applicants' arguments, as explained below.

The Office Action implies that Applicants' arguments, presented in the April 13 Amendment, traversing the prior art rejections of the previous Action attacked the combined references individually. The arguments did not attack the combined references individually, but rather argued that (1) even if combined, the references would not have resulted in the claimed combinations of features (see, e.g., page 7, lines 15-16 of the April 13 Amendment), and (2) the Faughn reference teaches away from the claimed combinations of features (see, e.g., page 8, lines 3-6 of the April 13 Amendment). The Office Action fails to address these arguments.

These arguments are repeated below for the convenience of the Examiner, along with additional reasons why the rejections are in error.

**II. Claims 1, 2, 4-7, 13 and 14 Are Patentably
Distinct From Epstein In View Of Faughn**

The Office Action, on page 2, indicates that the rejection over art from the prior Office Action is maintained. Specifically the Office Action, on page 2, rejects claims 1, 2, 4-

7, 13 and 14 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,743,154 to Epstein in view of U.S. Patent No. 6,050,822 to Faughn. This rejection is respectfully traversed.

Epstein discloses an omni-directional moving surface including a plurality of ball bearings; a bladder for enveloping the plurality of ball bearings; and an interface for connecting the bladder to a virtual reality means (Abstract). The Office Action admits that Epstein does not disclose a plurality of pressure-sensing elements formed over a base layer. Rather, the Office Action asserts that Faughn discloses this feature. The Office Action then concludes that it would have been obvious to use Faughn's "plurality" of pressure-sensing elements with Epstein's mat, as it is well-known to use a plurality of pressure-sensing elements, as taught by Faughn, for sensing a user in a virtual reality system, and as Epstein uses a sensor 801 for doing the same. This analysis is incorrect.

Applicants previously explained, and here repeat and clarify, the following. First, no pressure sensing occurs in the Epstein apparatus. The sensor 801 is a trackball motion sensor that translates bladder motion as an input to a virtual reality system. In fact, the Epstein device does not even "sense a user," as the Office Action asserts. It is irrelevant where the user is to the Epstein device. What is relevant to the Epstein device is how the bladder moves with respect to the trackball.

Second, Faughn, in teaching an Electromagnetic Locomotion Platform (ELP) comprising a structural honeycombed subplate, specifically teaches that omni-directional treadmills (as are taught by Epstein) suffer faults that are enumerated, for example, in the Faughn disclosure at col. 4, lines 43-63. The conclusion is that mechanical masses make instantaneous direction changes nearly impossible because of their inherent momentum, this causes incongruencies and movements which are "unreal" and "unnatural" to the user; and thus, the seamless immersion effect is degraded or even nullified. The Faughn device, the

disclosure goes on to state, "is designed to solve these deficiencies and add additional capabilities as well" (col. 4, lines 64-65).

Epstein discloses a system with "mechanical masses" (e.g., the moving bladder, rollers, etc.). Because Faughn teaches that mechanical masses are not acceptable, Faughn teaches away from any combination with a device such as that disclosed in Epstein.

One of ordinary skill in the art would, if motivated to use the Faughn teachings, have simply used the Faughn system instead of the Epstein system. One of ordinary skill in the art would have found that the two systems are very different, and that there is no logical way to combine the features of one with the features of the other.

Third, the modification proposed by the Office Action would change the principle of operation of Epstein. Specifically, for example, if one used pressure sensors instead of the track ball (which would, at any rate be meaningless, as discussed above, because the Epstein apparatus does not sense user position or pressure), it would change the very principle of operation of Epstein. Changing the principle of operation of the primary references is not acceptable in an analysis under §103(a). See MPEP §2143.01.

Fourth, it would be technically infeasible to put pressure sensors on Epstein's mat, which is a moving bladder. For example, where the pressure sensors would need to be connected to a controller by wires, the pressure sensors would move with bladder movement and therefore the wires would, for example, break.

III. The Office Action Is Incorrect In Its Analysis of Legal Precedent

A conclusion of obviousness may not be made from common knowledge and common sense of the person of ordinary skill in the art without any specific hint or suggestion in a particular reference.

MPEP §2143.01 instructs that "[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests

the desirability of the combination." MPEP §2143.01 further instructs that "[a]lthough a prior art device 'may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so.'" *See also In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Applicant respectfully submits that the rejection based on a combination of Epstein and Faughn is improper in view of at least MPEP §2143.01 because the Office Action lacks the required specific evidence of a teaching, suggestion or motivation in the references for one of ordinary skill to combine the references.

The Office Action departs from the above standard when it asserts that "while there must be some suggestion or motivation for one of ordinary skill in the art to combine the teachings of references, it is not necessary that such be found within the four corners of the references themselves, a conclusion of obviousness may be made from common knowledge and common sense of the person of ordinary skill in the art without any specific hint or suggestion in a particular reference." *In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969). To the extent that *Bozek* is relied upon to fill the void in finding evidence of a specific teaching, suggestion or motivation to combine the references, this reliance is misplaced. As discussed below, the Federal Circuit has clearly explained that *In re Bozek* does not relieve the Examiner from the requirement to provide evidence to support the conclusions of obviousness.

In 2002, the Federal Circuit exhaustively reviewed the standard for obviousness. *In re Sang-Su Lee*, 277 F.3d 1338 (Fed. Cir. 2002). On appeal to the Board of Patent Appeals and Interferences, an Applicant argued that the prior art provided no teaching or motivation or suggestion to combine the references in the manner that the Examiner and the Board had in finding the Applicant's claim obvious in view of the prior art. *Id.* at 1341. The Board had held that it was not necessary to present a source of a teaching, suggestion, or motivation to combine these references or their teachings, stating that "the conclusion of obviousness may

be made from common knowledge and common sense of a person of ordinary skill in the art without any specific hint or suggestion in a particular reference." *Id.* The Federal Circuit stated that the factual inquiry whether to combine references must be thorough and searching and that it must be based on objective evidence of record. *Id.* at 1343. The Federal Circuit continued its analysis stating that "[t]his factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority." *Id.* at 1343-44. To act otherwise, the Federal Circuit concluded, did not comport with legal requirements for a determination of obviousness. *See, e.g., id.* at 1344-45 (quoting *In re Zurko*, 258 F.3d 1379, 1385, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001) "deficiencies of the cited references cannot be remedied by the Board's general conclusions about what is 'basic knowledge' for 'common sense.'")

To the extent that the Board relied "for its departure from precedent" on *in re Bozek* (citations omitted), the Federal Circuit noted that *Bozek* "indeed mentions 'common knowledge and common sense.'" The Federal Circuit then stated, however, "*Bozek* did not hold that common knowledge and common sense are a substitute for evidence, but only that they may be applied to analysis of the evidence. *Bozek* did not hold that objective analysis, proper authority, and reasoned findings can be omitted from Board decisions. Nor does *Bozek*, after thirty-two years of isolation, outweigh the dozens of rulings of the Federal Circuit and the Court of Customs and Patent Appeals that determination of patentability must be based on evidence." 277 F.3d at 1345 (also quoting *Smiths Industries Medical Systems, Inc. v. Vital Signs, Inc.*, 183 F.3d 1347, 1356, 51 USPQ2d 1415, 1421 (Fed. Cir. 1999)) *Bozek's* reference to common knowledge "does not in and of itself make it so" absent evidence of such knowledge).

Clearly, reliance on *Bozek*, where evidence of motivation for the combination of the applied references is not present, is inappropriate. If such evidence is not found within the

references themselves (and it is not), the Examiner must provide some other form of evidence beyond general conclusions.

IV. The Office Action is Internally Incongruous Regarding the Rejections Under 35 U.S.C. §§103(a) and 102(b)

The Office Action rejects claim 1 over a combination of references, but rejects claim 8, which includes all of the elements of claim 1 and more, over Faughn alone.

The Office Action, on page 3, rejects claims 8-10, 12 and 15-20 under 35 U.S.C. §102(b) as being anticipated by Faughn. This rejection is respectfully traversed.

At the outset, Applicants respectfully point out that claim 19 has been canceled. Therefore, reference to claims 15-20 inclusive on page 3, and claims 18-20 inclusive on page 4 are inaccurate. To the extent that the rejections of the Office Action are applied to claims 8-10, 12, 15-18 and 20, Applicants submit the following remarks.

The Office Action indicates that Faughn discloses a locomotion interface, which allegedly is considered to include all of the elements of at least independent claim 8. Independent claim 8, however, recites, among other features, all of the features of the pressure-sensing mat recited in independent claim 1. It is unclear why the Office Action asserts that Faughn includes all of the features recited in claim 8, but does not assert that Faughn includes all of the features of claim 1. Regardless, Faughn does not include all of the features of either claim, as discussed below.

V. Claims 8-10, 12, 15-18 and 20 Recite Allowable Subject Matter

Independent claims 1, 8 and 18 varyingly recite the locomotion interface comprising, among other features, a plurality of pressure-sensing elements wherein the plurality of pressure-sensing elements output signals indicative of pressure applied to the top layer to a virtual reality system. Applicants' previously argued that the signals generated by the EMs to be output to the virtual reality system are not based on pressure sensing but rather on sensing

a disturbance in the electromagnetic fields generated by closely adjacent and/or overlapping EMs. The Office Action directs Applicants to the disclosure of Faughn at col. 5, lines 45-54 stating that Faughn discloses the use of a Calibration Strip which uses pressure sensing technology which reads on the application as claimed, and that Faughn's EMs are sensing a pressure referring to some portion of the Faughn disclosure at col. 14, lines 15-35. These statements are not correct.

In reply to these conclusions of the Office Action, Applicants respectfully submit that the separate Calibration Strip disclosed in Faughn cannot reasonably be combined with other separate elements in the disclosure of Faughn to find the features of the claims anticipated by Faughn. Specifically, the two surfaces disclosed in Faughn, the ELP and the Calibration Strip are separate and distinct portions of the device. As such, these separate elements cannot be logically combined to show the features of a pressure-sensing mat including a base layer, a plurality of pressure-sensing elements formed over the base layer, and a top layer formed over the plurality of pressure-sensing elements, wherein the plurality of pressure-sensing elements output signals indicative of pressure applied to the top layer, as is varyingly recited in at least independent claims 1, 8 and 18, to be taught.

In this regard, it is not enough that the reference arguably simply mentions each of the features recited in Applicants' claims, but rather those features must be taught by a single prior art reference "arranged as in the claims." In reviewing the anticipation standard, the Federal Circuit stated "[t]o anticipate, every element and limitation of the claimed invention must be found in a single prior art reference, arranged as in the claim." *Brown v. 3M*, 265 F.3d 1349, 1351, 60 USPQ2d 1375 (Fed. Cir. 2001), *cert. denied*, 122 S. Ct. 1436 (2002) (emphasis added). Additionally, other court precedent clarifies the requirements for anticipation based on arguably distinct teachings in a single prior art reference, stating that "the reference ... must clearly and unequivocally disclose the claimed compound or direct

those skilled in the art to the compound without any need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference." *In re Arkley*, 455 F.2d 586, 587, 172 USPQ 524 (CCPA 1972); *see also Sandisk Corp. v. Lexar Media, Inc.*, 91 F. Supp. 2d 1327, 1336 (N.D. Calif. 2000) (stating that "[u]nless all the elements are found in a single piece of prior art in exactly the same situation and united the same way to perform the identical function, there is no anticipation.") and *Aero Industries Inc. v. John Donovan Enterprises-Florida Inc.*, 53 USPQ2d 1547, 1555 (S.D. Ind. 1999) (stating that "[n]ot only must a prior patent or publication contain all of the claimed elements of the patent claim being challenged, but they 'must be arranged as in the patented device' "). This standard for anticipation is also set forth in MPEP §2131, which states that "the identical invention must be shown in as much detail as is contained in the . . . claim." Further, although the same terminology need not be used, "the elements must be arranged as required by the claim."

The Office Action improperly ignores these requirements for anticipation by combining the ELP of Faughn with the separate Calibration Strip for what each of these devices separately may allegedly teach.

Because the separate Calibration Strip is not disclosed to include the sensing elements and the other enumerated features of the ELP system of Faughn, which the Office Action considers anticipate features of the pending claims, the separate Calibration Strip cannot be relied on as teaching a plurality of pressure-sensing elements in combination with the other enumerated features.

Applicants also renew the argument made in the April 13 Amendment. EMs are placed under a top plate material, and the EMs are individually controllable (col. 4, line 66 - col. 5, line 8). A user wears modified footwear with a special sole containing thin flexible metal sheets, bars or special ferrous particle material impregnated into the sole, or other

active system, to enhance the attractive force of the EMs (see, e.g., col. 5, lines 16-35). As such, Applicants argue that the signals generated by the EMs to be output to the virtual reality system are not based on pressure sensing but rather on disturbance in the electromagnetic fields generated by closely adjacent and/or overlapping EMs. The Office Action appears to accept this argument in relying on the disclosure of the separate Calibration Strip as teaching pressure-sensing elements, but to the extent that the previous rejection is maintained, Applicants renew this argument.

VI. Conclusion

For at least the above reasons, Applicants respectfully submit that the rejections of the claims under 35 U.S.C. §§103(a) and 102(b) over the applied references are arguably improper. Additionally, Applicants respectfully submit that no permissible combination of the elements taught by Faughn, or no permissible combination of Epstein and Faughn, can reasonably be considered to teach, or even to have suggested, the combinations of all of the features varyingly recited in the pending claims.

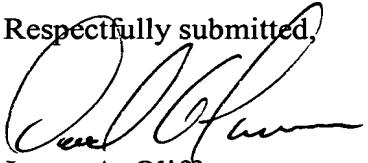
Accordingly, reconsideration and withdrawal of the rejections of claims 1-18 and 20 under 35 U.S.C. §§103(a) and 102(b) over the applied references are respectfully requested.

Applicants' representative presented each of the above arguments to the Examiner during the August 3 personal interview. The Examiner indicated that Applicants' arguments were reasonable and agreed to consider them more fully upon submission of a formal response.

In view of the foregoing, Applicants respectfully submit that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-18 and 20 are earnestly solicited.

Further, based on the totality of the above discussion regarding the inadequacy of the Office Action Applicants respectfully request that the finality of the current rejection be withdrawn.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number set forth below.

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Date: August 15, 2005

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